

evident from Merriner and Smith (1979). Claims that cownose rays have “exploded” are not justified because their intrinsic rate of population increase is limited due to late maturity and low fecundity. Independent gill net survey data collected by DMF since 2001 show a level abundance of cownose rays in the Pamlico Sound area (Figure 9.11). In Chesapeake Bay, aggregations of rays are dynamic in that their foraging locations will change with time over the summer. In dry summers they penetrate farther up into the tributaries because of higher salinities while in wet years they may be more concentrated in the lower Bay, so periodic local shellfish damage in Chesapeake Bay is more a function of this ray movement rather than abundance (J. A. Musick, Virginia Institute of Marine Science, personal communication 2006).

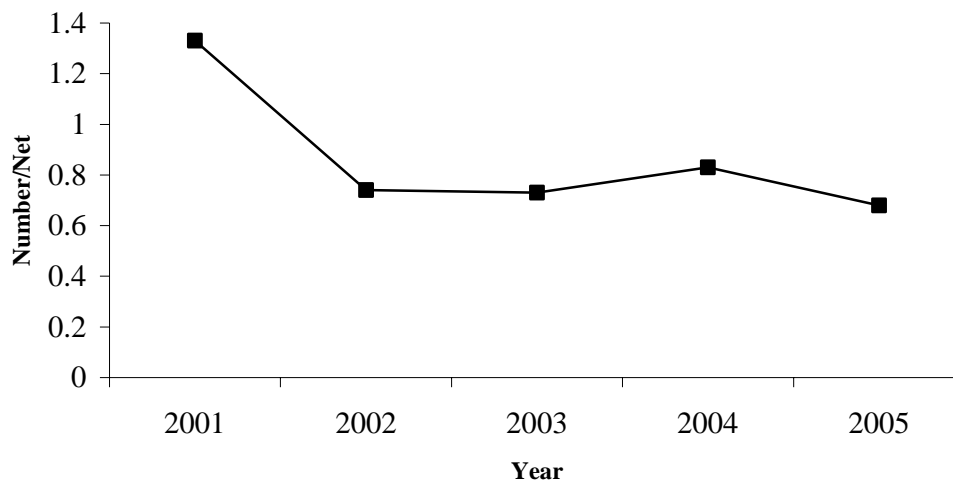


Figure 9.11. Average CPUE (number/net) of cownose rays in the independent gill net survey in Pamlico Sound. DMF biological sampling.

Major declines in sharks occurred in the 1980s, but some populations have rebounded to at least 50% of their former abundance (J. A. Musick, Virginia Institute of Marine Science, personal communication 2006). The DMF’s 2006 stock status report on sharks states that the large coastal complex is not overfished. (DMF 2006).

Effort to restore the bay scallop fishery should consider the potential of large-scale mortality of high-density patches of bay scallops by cownose rays. Various options to explore controlling cownose ray predation include: 1) the use of stake-fencing using large mesh net fences or stockades as a short-term method of protecting bay scallops, or 2) to develop a fishery for cownose rays (Merriner and Smith 1979; Peterson et al. 2001; Powers and Gaskill 2005). Transplantation of scallops from areas of high density to areas of low densities is another possible solution worth exploring. Transplanted scallops should be placed in low densities (less than 3/m<sup>2</sup>) or protected by stockades until cownose rays have migrated out of the area (Peterson et al. 2001; Powers and Gaskill 2005).

Potential problems of fencing or stockading scallop beds include hazards to navigation, maintenance, and monitoring of beds. Areas that would need protection